

Source Water Assessment Program (SWAP) Report

For

Assurance Technology



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
January 8, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Assurance Technology
<i>PWS Address</i>	84 South Street
<i>City/Town</i>	Carlisle
<i>PWS ID Number</i>	3051011
<i>Local Contact</i>	Kevin Cadorette – Maintenance Supervisor
<i>Phone Number</i>	978-369-8848

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	3051011-01G	162	457	High
Well #2*	3051011-02G	162	457	High

*NOTE: Well #2 is an "Emergency" Source and is not used on a regular basis.

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

1. DESCRIPTION OF THE WATER SYSTEM

The Wells

Assurance Technology is a public water system currently serving 75 employees. Well #1 is located on the south side of the barn, and is 4 inches in diameter and drilled to a depth of 325 feet. Well #1 has a Zone I radius of 162 feet and an Interim Wellhead Protection Area (IWPA) radius of 457 feet. Well #2, an emergency source, is inside the main building, and is 4 inches in diameter and drilled to a depth of 525 feet. Well #2 has a Zone I radius of 162 feet and an Interim Wellhead Protection Area (IWPA) radius of 457 feet. These wells are located in bedrock with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the well locations, Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The Water Quality

The water quality of Well #1 currently meets all US Environmental Protection Agency and MA Department of Environmental Protection (DEP) drinking water standards. Well #1 Assurance Technology has potassium hydroxide added to raise the pH of the water to reduce its corrosiveness. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above.

2. DISCUSSION OF LAND USES IN THE PROTECTION AREAS

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. inappropriate activities in Zone Is; and
2. potential discharge of hazardous material to the septic system through a floor drain in the basement.

The overall ranking of susceptibility to contamination for the well is high, based on the presence of at least one high threat land use or activity in the IWPA.

1. **Zone Is** - Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. Assurance Technology's Zone I contains buildings, roads, parking areas, a maintenance barn, and a septic tank. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

2. **Hazardous Materials** - A floor drain in the basement currently discharges to the septic tank that is located in the Zone I, and to the leaching field that is located in the IWPA. If hazardous materials are stored in this area, discharge from the basement floor drain **MUST** be sealed or go to a tight tank, and staff should be trained on proper disposal of hazardous materials.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Engineering	Storage, use, and improper disposal of hazardous materials	Yes	Yes	High	Small quantities of hazardous materials stored in the barn
	Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
	Septic system	Yes	Yes	Moderate	See septic systems brochure attached
	Structures	Yes	Yes	Moderate	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

3. PROTECTION RECOMMENDATIONS

Assurance Technology should review and adopt the following recommendations:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities (such as parking, storage of hazardous materials, etc.) from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ If land uses such as the maintenance barn continue to operate in the Zone I, work with operators to implement Best Management Practices to protect the water supply.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ If necessary, bring the floor drain into compliance with Department Regulations (refer to Industrial Floor Drain Brochure attached).
 - * Contact the UIC coordinator for the Northeast Region Office of the Department for additional technical assistance (Ron Stelline Tele. #978-661-7656).
 - * Interim Actions: cease using the floor drains
- ✓ Prohibit public access to the wells by fencing, and posting signs.
- ✓ Conduct regular inspections of the Zone I and IWPA. Look for illegal dumping, evidence of vandalism and check any above ground tanks for leaks, etc.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ Redirect road and parking lot drainage away from well. Work with your community to ensure that stormwater runoff in the IWPA is directed away from the well and is treated according to DEP guidance.
- ✓ Do not use or store pesticides, fertilizers or road salt within Zone I.
- ✓ Use propane or natural gas for back-up power sources.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information please refer to the attached program fact sheet from last year (Please note each program year the Department posts a new Request for Response for the Grant program (RFR)).

Training and Education:

- ✓ Train staff and residents on proper hazardous material use, transportation, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use, transportation and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at:
<http://www.dep.state.ma.us/dep/bwp/dhm/dhmpubs.html>

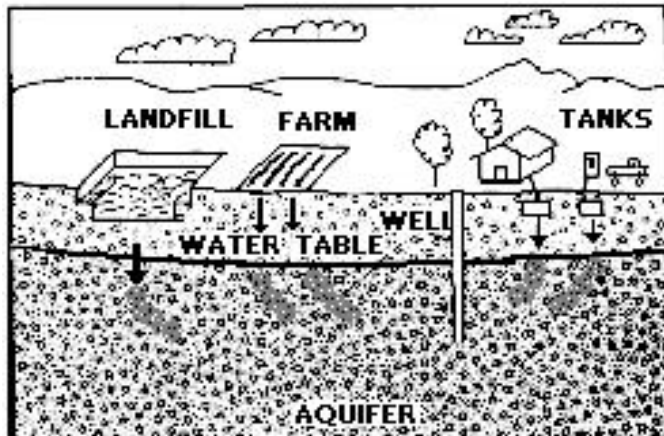


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. In areas where hazardous materials are used or stored, floor drains must be sealed or discharge to a DEP approved tight tank.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on Assurance Technology property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the Attachment for more information regarding septic systems.
- ✓ Concrete pads should slope away from well and well casing should extend above ground.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

Planning:

- ✓ Work with local officials in Carlisle in creating a Groundwater Protection District Bylaw to meet current DEP regulations, and include Assurance Technology's IWPA..
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

The above recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Attachments:

- Map of the Public Water Supply (PWS) Protection Area.
- Wellhead Protection Tips For Small Public Water Systems
- Industrial Floor Drains brochure
- A Reference Guide for Homeowners: Your Septic System
- Summary of Recommended Source Water Protection Measures
- Protecting Groundwater from Pesticides
- Healthy Lawn/Healthy Environment
- Source Protection Sign Order Form
- DEP Publications - Hazardous Waste Management

Copies of this assessment have been provided to the water supplier, town boards, the town library and the local media.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix